U. S. DEPARTMENT OF COMMERCE

CIVIL AERONAUTICS JOURNAL

ISSUED TWICE MONTHLY BY THE CIVIL AERONAUTICS AUTHORITY

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President Roosevelt Lays Cornerstone at Dedication Ceremonies

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IN THIS ISSUE

President Roosevelt Lays Cornerstone at Washington National Airport

Air Armada Flies Over Area as President Gives Signal—Terminal Building To Be Completed by December 17

With its runways 90 percent completed, President Roosevelt on September 28 laid the cornerstone of the terminal building for the new Washington National Airport at Gravelly Point, 3½ miles south of the Nation's Capital on the west bank of the Potomac River. The terminal building itself, with all essential service features, will be completed by December 17, the thirty-seventh anniversary of the first flight of the Wright brothers at Kitty-hawk, N. C. At that time the entire project will be put into service with ceremonies of national and international scope.

Such ceremonies are appropriate because the Washington National Airport may well serve as a model for all metropolitan terminals of air traffic. While not the largest in the world, its size is sufficient to provide, with future developments, for all forseeable air line traffic. The safety and other aeronautical factors in its design are well in excess of the usual requirements. Planes can glide in or take-off at an angle as flat as 40–to–1 in eight directions to and from its four runways, at least two of which are long enough and broad enough to be equipped with blind landing systems, and all of which are long enough and broad enough to take care of any known development possible in transport planes' size or speed. At a later date, if needed, these runways can be paralleled at reasonable additional cost.

Service Planes Take Part

Coincident with the arrival of the Chief Executive and his staff at the airport for the ceremony of the cornerstone laying, more than 400 fighting planes, representing all branches of the military services, converged over the area from all directions. It was one of the mightiest air armadas ever seen in the United States.

In stately, graceful formation, the fighting aircraft, ranging in size from the Army's huge "flying fortresses" to speedy pursuit ships, winged their way at staggered levels over the heads of the assembled throng.

The Navy and Marine air arms were represented by 165 planes from the Fleet Marine Force at Quantico, Va., and the aviation units from the Aircraft Carriers *Ranger* and *Wasp*. This group of planes was made up of bombers, scouts, and fighters.

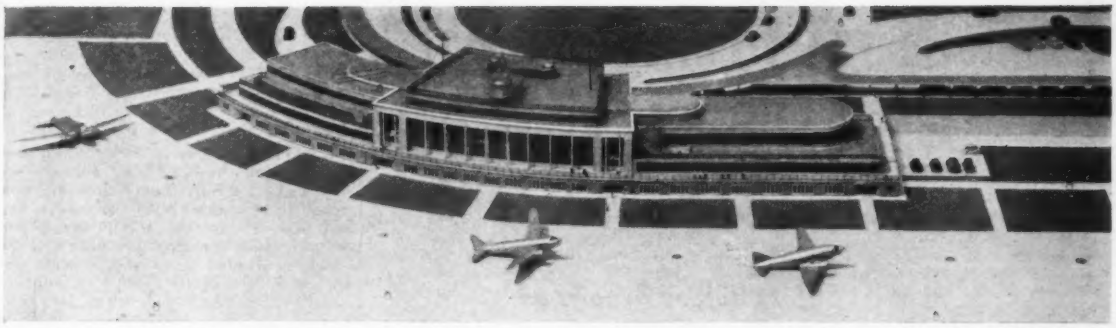
Representing the Army's GHQ Air Force were 240 combat planes from stations all over the eastern half of the United States. Flight groups taking part in the maneuvers were from Langley Field, Va., MacDill Field, Fla., Mitchel Field, N. Y., Barksdale Field, La., and Selfridge Field, Mich.

Opening the ceremony, commercial air liners serving Washington, accompanied by Civil Aeronautics Administration and Coast Guard planes, circled over the airport and landed just before the service planes appeared.

Description of Terminal Building

The terminal building lies almost in the center of the development, connected by taxiways to the ends of each of the four runways. Its design, while meeting all the requirements of the most modern of all means of transportation, will conform handsomely to the classic tradition of the neighborhood. For instance, while the flying-field facade of

Landward facade of terminal building as shown by architects' model. Spectators enter building from main traffic circle over bridges to the right and left.



Terminal building as it will appear from the flying field when completed. Loading apron, with series of flush-type underground service pits, will accommodate an entire fleet of transports.

this building is almost wholly of glass, it is masked by delicate columns more than a little reminiscent of those at Mount Vernon. The land side of the building, with its central colonnade and spreading wings, again recalls the best of the domestic classic architecture of colonial times.

The building itself runs 540 feet along a curved line, and is three stories high, exclusive of the control tower from which every foot of every runway is visible, and the belvedere for weather observation on the roof. The ground floor is almost exclusively working space. The main floor is devoted to the handling of passenger traffic and visitors. The upper floors are for airline and airport officials, except for the dining room in the north wing, and for the operations of airways and airport traffic control, radio communications, and weather bureau.

This design will result in the least possible conflict among the various kinds of traffic using the airport. Entrance from the Mount Vernon Boulevard is through two very gently curved grade separations permitting high speed, one at the north end of the development and one at the south. From these entrances and exits, roads lead to the service areas such as the hangars, the mail and express rooms in the ground floor of the terminal building, and the airline working spaces.

Passengers and visitors will come to the traffic circle, some 10 feet above the level of the flying field and the working space of the building. Visitors can cross a small bridge to the main-floor terrace of the terminal, walk its entire length outside or reach the upper observation decks, and return to the traffic circle at the other end of the building without once crossing the path of passengers to and from planes.

Facilities for Air Travelers

These passengers enter the central portion of the terminal building by doors at the southerly end of the colonnade. This brings them directly to the waiting room. There the airline ticket offices are directly to their left, while to their right are toilet and dressing rooms, barber shop, and other services, including a few small sleeping rooms in the south wing.

They take their tickets and their baggage is weighed and chuted to the floor below. Turning from the ticket counters and facing the field, they see through windows 30 feet high and extending the length of the room behind the colonnade and visitors' terrace. Three shallow steps lead down to this glass wall past telegraph and information counters and to the passenger concourse which extends the entire length of the building at this level behind glass. It contains seats where passengers can wait for their planes beside the designated stairways which lead down less than 10 feet to the flying level and out through wide doors to the planes on the aprons. Either side of these wide passenger doors, 4 in number, are toilet and telephone facilities. They give access to 14 positions where planes may be boarded or left.

Landing Apron

This apron will be kept clear of the usual clutter of gear. At each plane position, gasoline, oil, electric current, conditioned air, and telephone connections are available in underground pits. Fuel and other trucks will not have to run onto the apron. Similarly, mail and baggage hand trucks, gangways and other gear will be kept in airline operations offices or the mail and baggage rooms on this level off the field, except when in actual use.

Mail enters the ground floor of the terminal building at its southerly end. Trucks back to a platform and deliver their loads, then leave the building through a truckway underground and a service road to the north. This truckway also provides an underground garage beneath the traffic circle and air express facilities at its northerly end.

At the southerly end of this ground floor, there also is provided a waiting room that can be used as a Presidential suite for the reception of distinguished visitors, whose cars can be run down from the traffic circle to its door.

All the rest of the flying field face of this ground floor is devoted to working space for the airlines. There pilots, co-pilots, hostesses, and dispatchers will meet to prepare flights. A special elevator will take pilots to the communications, control and weather offices on the top floor for their last flight information.

The rest of the space is devoted to mail, baggage, and express working rooms and to storage space for the restaurant and cafeteria, and to cafeteria space for employees.

These latter are a part of an extensive concession system. Just off the main waiting room on the main floor is the passengers' coffee shop. Above it, reached from the waiting room by a sweeping short flight of steps, is the main dining room and terrace. Refreshment stands of controlled design and management will be placed throughout the grounds.

The main dining room itself is expected to make a new and charming center of Washington social life. It extends 120 by 40 feet, through this wing and the east wall, entirely of glass, faces a 20-foot dining terrace overlooking the flying field, the river and the city. The lessees of this space are expending some $300,000 in decoration and equipment. In the circular space at the northerly end, they expect to provide dancing to famous bands and to devote adjoining space to bar and cafe and private dining rooms where aeronautical and civic organizations can meet. The revenue from this and other concessions will be entirely on a percentage basis and, together with air line and other rentals, is expected to amount to a sum sufficient to pay expenses and amortize the entire cost of the project.

Ample Parking Space

In fact, the attraction of the general public to the airport has been a principal object of its design from the beginning. All along the rising ground between the flying field and the Boulevard, space will be provided for parking cars either in storage or in spaces so graded that from each row of parked cars the occupants can see the flying field clearly over the tops of the cars in front of them.

In all, parking space will be provided for about 5,000 cars ordinarily, with emergency space for about 3,000 more.

There likewise will be bleachers or a grandstand along the edge of the flying

(*See* AIR TERMINAL, *page 458*)

CAMPAIGN AGAINST CRASHES !

AIR SAFETY

Air Accident Causes Include Negligence, Inexperience

Safety Bureau Reports on Individual Crashes Cite Probable Causes and Contributing Factors

The CIVIL AERONAUTICS JOURNAL here presents another group of Safety Bureau reports on individual private flying accidents.

The Bureau, in this type of accident report, stresses the probable cause, contributing factors, and other related factors—hoping that by this emphasis placed on what in many cases amounts to sheer megligence, inexperience, violation of the Civil Air Regulations, or simply the ignoring of common sense rules of flying, a recurrence of these accidents can be prevented.

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Lack of Altitude Causes Glider Pilot's Injury.—Near Frankfort, Mich., about 1 p. m. on October 14, 1939, Laurence W. Kinne, a private glider pilot, with 111 flights, met with an accident which resulted in his serious injury. Kinne, while preparing for a soaring flight, was cautioned against attempting to proceed to a ridge from the take-off area unless a certain altitude was attained during the tow. The take-off was made from a beach about 300 feet distant from the ridge with trees and farm buildings between. Following the take-off, the pilot headed toward the ridge but lacked sufficient altitude to clear a barn, which the glider struck, damaging its left wing and nose.

The Probable Cause.—Failure of the pilot to gain sufficient altitude before leaving the take-off area during a soaring flight.

Pilot Injured Attempting Down-Wind Landing.—At Municipal Airport, Graham, Tex., about 4 p. m. on December 18, 1939, Carl L. Washburn, a student pilot with 450 hours, while engaged in a noncommercial cross-country day flight, met with an accident which resulted in serious injury to the pilot and minor injury to the passenger, Carl F. Washburn, Jr. The plane was a Curtiss Robin, certificate No. NC 7499. Washburn, accompanied by his son, was returning from Fort Worth, Tex., where he had purchased the aircraft, when he approached to land at the Graham Municipal Airport. A wind of approximately 10 mile per hour then prevailed and the approach was made down wind toward the northeast. The pilot had available in this field area a distance of approximately 2,800 feet for the landings. However, the aircraft contacted the ground near the northeast corner of the field, and the pilot immediately applied power to recover altitude for another approach. About 500 yards beyond the field boundary the aircraft stalled and struck a garage before striking the ground on its nose and landing gear. The garage was demolished, and the aircraft received major damage, including destruction of landing gear and damage to the wing struts, fuselage, engine mount, and propeller.

The Probable Cause.—Pilot overshot airport and applied power too late to clear obstructions.

The Contributing Factor.—Action of pilot in attempting to land down wind.

Inexperience of Student Pilot Causes Five Deaths.—Near Aredale, Iowa, about 7:05 p. m. on June 12, Chester Arlo Barnett, a student pilot with 50 hours, while engaged in a noncommercial flight, met with an accident which resulted in fatal injury to himself and 4 passengers. The plane was a Stinson Jr. R. Barnett had made several short flights prior to the last flight which took off about 6:50 p. m. on June 12. Four guest passengers were enplaned notwithstanding that seating accommodations were provided for only a pilot and 3 passengers. It is indicated, however, that the combined weights of the pilot, passengers, and fuel supply were within the permissible pay load for the type of aircraft. The field used for these flying operations was a pasture field on the farm of the pilot's father. The aircraft was equipped with fully-functioning dual controls. The student pilot executed a normal take-off into the wind, then placed the aircraft in a normal climbing attitude which continued until the aircraft disappeared beyond the ceiling of approximately 2,500 feet which then prevailed. The pilot's father, who observed the flight from the take-off field, states that approximately 15 minutes after the aircraft disappeared from view, he observed it descending from the overcast, heading in an easterly direction with the motor throttled. The gliding descent continued to an altitude approximately 700 feet when power was heard to be applied and the aircraft observed to enter a steep left turn. It stalled during the turn and fell off into a spin which continued for approximately one and one-half turns until it struck the ground on its nose and was demolished. The student pilot and the 4 passengers all received fatal injuries.

The Probable Cause.—Pilot stalled the aircraft during a turn at low altitude.

The Contributing Factor.—Inexperience of the pilot.

Comment.—The Civil Air Regulations say that a student pilot shall not pilot any aircraft carrying any persons other than a certificated instructor.

Spin Causes Death of Pilot and Passenger.—Near Ninilchik, Alaska, about 1 p. m. on March 20, Orville K. Larson, a commercial pilot with 985 hours and 30 minutes, while making a noncommercial flight, accompanied by one passenger, met with an accident which resulted in fatal injury to both men. The plane was a Piper Model J4A. Larson, accompanied by Adolph Jackinsky, took off from a small snow-covered beach near Ninilchik, in a ski-equipped aircraft. According to witness' statements, the flight continued in a normal manner until the aircraft fell into a spin while in a steep bank at an altitude of about 2,000 feet. The aircraft spun to the ground about 2 miles northwest of Ninilchik and was demolished. Examination of the wreckage did not indicate that power plant or structural failure had occurred prior to the impact.

The Probable Cause.—Failure of the pilot to recover from a spin.

Structural Failure in Plane Cause of Two Pilots' Deaths.—Near Stevens, S. Dak., about 12:10 p. m. on June 6, Robert Eli Johnson, a private pilot with 83 hours, while making a noncommercial flight, with one passenger, met with an accident which resulted in fatal injury to both. The plane was a Monocoupe 113. Johnson, accompanied by pilot Charles W. McPherson, took off in an aircraft which Johnson had purchased but had not flown. Pilot McPherson, who passed his tests

for a private pilot's license just 8 days before, had flown the aircraft that morning. The evidence indicates that the dual rudder pedals were operative at the time of take-off. Another pilot who had piloted the aircraft the day before reported that the aircraft had a tail-heavy characteristic which required forward pressure to be exerted on the control stick to enter and maintain a glide. A normal take-off was executed and the aircraft attained an altitude of approximately 500 feet in a normal climb before the pilot placed the aircraft in level flight. It then was observed that a series of banks were being executed. A short time later, the aircraft was observed in flight at an altitude of approximately 100 feet, where it entered a left spin which continued for approximately one turn before it struck the ground on its nose and was demolished. Subsequent inspection of the wreckage disclosed that the left lower aileron pulley jammed, locking the left aileron in the "up" position.

The Probable Cause.—Failure of the left aileron pulley in flight.

Low Stunting Causes Pilot Injury.—At Canoga Park, Calif., about 1 p. m. on November 18, 1939, Cornell G. Taylor, a student pilot whose flying experience could not be ascertained, while engaged in a noncommercial day flight, met with an accident which resulted in his serious injury. The plane was a Fleet Model 2, certificate No. NC 618 M. Taylor, after renting the aircraft at Mines Field, Calif., took off and flew approximately 22 miles to the town of Canoga Park, where he lived. There, according to witnesses, he made a series of dives over the homes of friends and neighbors, flying less than 500 feet above the ground. In the last dive, a wing struck a tree, and the aircraft dove to the ground. A portion of the tail group was virtually the only major part of the aircraft undamaged.

The Probable Cause.—Recklessness of the pilot in performing acrobatic maneuvers at low altitude.

Observation.—It is good sense for aircraft owners who rent airplanes to ascertain the intentions of the renters before letting them out.

Sharp Turn at Low Altitude Causes Pilot's Death.—Near Worthing, S. Dak., about 4:12 p. m. on November 16, 1939, Harm Hyronimus, Jr., a private pilot with 172 hours' flying experience, while engaged in a noncommercial day flight, met with an accident which resulted in his fatal injury. The aircraft was a Porterfield Model 35–70, certificate No. NC 15886. Hyronimus was flying back and forth over a cornfield at an altitude of about 50 feet while looking for a stray calf. Upon sighting the calf, he banked sharply to the left, completed one circle, and was starting another when the aircraft stalled and fell to the ground on its nose, demolishing it.

The Probable Cause.—Pilot stalled aircraft during a sharp turn at low altitude.

Comment.—Sharp banks at low altitudes are dangerous and a violation of Civil Air Regulations.

Second Safety Bureau Report.—

Percentage of Fatal Private Flying Accidents Drops; Transport Crash Ends 17-Month Record

The Safety Bureau of the Civil Aeronautics Board on September 19 made public its second monthly accident report. The summary concentrates upon fatal accidents and is planned as a regular feature.

A definite percentage drop in fatal accidents in non airline flying during the past month as compared with the month of August a year ago, was marred only by the tragic crash of an air transport plane which broke the 17-month safety record of the domestic air carriers, the Bureau reported.

After flying 1,361,889,362 passenger miles and 136,367,473 plane miles, the Bureau stated, the splendid record established by the air lines over a period of 17 months without fatal injury to passengers or crew was broken by the unfortunate accident at Lovettsville, Va., on August 31, in which 21 passengers met their death. The Safety Bureau is making every effort to determine the cause of this accident.

In the same month, there occurred 26 fatal accidents in non-air carrier-operation. In view of the increased flying activity, this does not compare unfavorably with a total of 22 fatal accidents in August 1939. Due to the fact that there was a very great increase in the number of pilots holding certificates, 42,645 this August as against 26,144 last August, an increase of only four in the total number of accidents is not discouraging, the Bureau said. "Perhaps this bears out the forecast made in our previous release, in which it was said: 'Since at least half of the new pilots added to the rolls are graduates of the thorough training offered in the Civilian Pilot Training Program, we believe we can hope for an actual decrease in the number of fatal accidents per active pilot certificate.'

"Of the 26 non-air-carrier fatal accidents which occurred in August, 5 involved the Civilian Pilot Training Service. Of the 5 fatal C. P. T. accidents, 2 occurred as the result of violations of the Civil Air Regulations and a third was included as a C. P. T. accident although the C. P. T. student was not affected. In this case 2 airplanes collided in the air, 1 of them being flown by a C. P. T. student. He escaped unhurt. Unfortunately the other pilot was fatally injured. During July, this C. P. T. service continued to fly at the rate of well over 6,000 hours per day.

"A further step forward came, however, in a move to control traffic congestion. Recognizing the increased collision hazards resulting from the enlarged training plans of the Army, the Navy, the Civilian Pilot Training Program, and in the expansion of air transportation, a joint technical committee, composed of representatives of the Army and Navy, Civil Aeronautics Administration, and the Civil Aeronautics Board was appointed in August to study this problem and make recommendations for its solution."

Jerome Lederer, Director of the Safety Bureau, added to this report his opinion that pilots and aircraft operators should feel personally responsible for the general welfare and progress of aviation. When they see some pilot endangering the lives of others by foolish flying or in any other way, they should consider it their duty to correct the situation or report it to the Civil Aeronautics Administrator or to the Safety Bureau.

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Optical Illusion Blamed In Emergency Landing

An optical illusion was blamed by the Safety Bureau of the Civil Aeronautics Board for the fire scare aboard an American Airlines plane on September 13, causing it to take emergency safety measures when it landed at Louisville, Ky. Passengers in the plane's cabin reported to the pilot that one engine appeared to be on fire. He immediately cut the engine, applied the automatic fire extinguisher and radioed Louisville for fire engines and ambulances.

Jerome Lederer, Director of the Bureau, issued the following statement concerning the incident:

"Following notification of a forced landing at Louisville, Ky., due to fire near the engine nacelle of an American Airlines Douglas DC–2, the Safety Bureau dispatched one of its staff to Louisville to conduct an investigation.

"Careful examination of the area where the fire was presumed to have existed revealed no evidence of flame or smoke. Further examination, however, revealed that a gray-colored tape which is used to prevent chafing between the metal cover strip and the wing had worked itself loose and into the airstream for a distance of several inches. This metal strip covers the junction between the wing stub and the wing panel and is just beyond the engine nacelle. The rapid vibration or flutter of this grayish tape in the air stream coupled with a flaming sunset which reflected on an adjacent portion of the metal when the airplane was in a certain attitude gave the appearance of flame issuing from within the wing.

"This condition was simulated and witnessed by several members of the Safety Bureau during a flight on the same aircraft. The Safety Bureau has accepted this explanation and wishes to commend the air line for its conservative operation and rapid action in this incident even though no fire existed."

Robert H. Hinckley Discusses Civilian Flying and the National Defense

Assistant Secretary of Commerce Tells National Petroleum Association of Progress of Pilot Training Program and Urges Airport Expansion

The demand for national defense measures is "a practical manifestation of awareness" on the part of the American people, Assistant Secretary of Commerce Robert H. Hinckley declared in an address before the annual convention of the National Petroleum Association in Atlantic City, N. J., on September 19.

Discussing the relationship of civilian flying to national defense, Mr. Hinckley outlined progress of the Civilian Pilot Training Program since its inception, and urged an expanded program of airport development. "It is my conviction," he said, "that half a billion dollars could be expended wisely in the next few years in the improvement of present airports and the development of new ones."

Excerpts From Mr. Hinckley's Address

"National defense has fired the public thought amazingly in a very short time, and much of this thought has crystallized into a firm insistence that America build an Air Force nothing short of invincible.

"This demand screams from editorial columns; thunders from the rostrum; is echoed by the tongue of the man in the street. I don't view this as an awful evidence of our warlike nature, or as a menace to our free institutions. To me, it is just a practical manifestation of *awareness*. It is the manifestation of truly American determination to maintain our democratic way of living, be the cost what it may. It is an expression of hope that we can win the Battle of America *now*, without actually being attacked and without actually having to fight it—by being prepared.

"What is the relationship of civil aviation to National Defense? I think that is quite simple. Everything we ever have done in this country on a grand, mass scale, we have done in the spirit of peaceful, civilian commerce. In this spirit came our great highway system, our harbors and waterways, and many other things. But we never completely forgot, in our peaceful planning, that some day we might need to use these facilities in our own defense; and so most of them, as they developed, were shaped and coordinated with our military planners so that they might be converted to defense purposes.

"Civil aviation is just another transportation system—the newest and the swiftest, true, but really just another kind of transportation. And it has been developed, like its predecessors, to serve us in peaceful commerce, but convertible for defense use whenever we might need it.

"Commercial flying has been shaped on that policy, under the leadership of the C. A. A. and its predecessors, to give the passenger quick and safe voyage across a vast land; to telescope the time once needed to carry important mail—in brief, to make possible the steady development of speed, safety, and comfort to a level of world leadership.

"We all are aware of the importance of highways in military operations. In this era when conflict has taken wings, what could be more important than aerial highways?

Federal Airways

"These we have established—thousands of miles of them. They form a network over America so complex that scarcely a town is more than a few hours by automobile from some scheduled air-line route. But we have done something much more important than merely establishing these airways. We have worked out and put in operation a system of control which makes them equally as safe, or safer, and almost as definite as a concrete highway.

"The military importance of these established air-lanes is obvious. Consider the route between New York and Chicago. It is slightly more than 700 miles long. The area under control is 25 miles wide. First, danger of collision in the sky is minimized by specifying different altitudes at which east- and west-bound planes must fly. About every 50 miles along the route an intermediate emergency field is maintained. Seventy-eight beacon lights aid airmen in visual flying at night. Radio range stations furnish further guides, while Government radio stations add their very considerable bit by furnishing the flier hourly weather reports. Radio, too, makes communication possible between plane and ground.

"Obviously, too, no such intricate system, which now extends over 28,000 miles of airways, ever was conjured up overnight. This system is the priceless end-product of years of scientific study, experimentation, trial, and error. Establishment and control of airways was designed to expedite civilian flying and make it safe. But the airways are available now, as they always have been, for military use. Studded with millions of dollars' worth of expensive equipment, stocked with the highest grade petroleum products, manned by hundreds of skilled technicians, they represent a defense asset that even America would have neither time nor talent to develop while in the grip of an emergency.

"When our Air Force reaches the size asked by the President and authorized by the Congress, it will find, ready-made and smoothly functioning, an airways system with sufficient capacity for the needs of the greatest air fleet ever conceived. In fact, these airways already are old stuff to the Air Corps, which has been shuttling back and forth over them for years.

Need For Airports

"Then, too, airplanes must have places to land. All through the modern era of expansion, Government experts and agencies have fought alongside the industry for an adequate airport system. It has been needed a long time, but is more urgently needed now. Commercial flying alone has increased 60 percent in the past six months. That is aside from the great increase in Army and Navy activities under which the military services soon must take over nearly 100 airports now used for civilian flying.

"It is my conviction that half a billion dollars could be expended wisely in the next few years in the improvement of present airports and the development of new ones. This opinion is based on years of study by our Airport Section It is conservative. It is built upon detailed figures, chapter, and verse, showing the status and needs of each airport, and as you probably know, the President asked Congress this week for an 80-million-dollar airport appropriation which will serve as a substantial start in this direction.

(See Civil Flying, page 451)

New Texts Prepared for C. P. T. P.

Series of Ten Publications Will Provide Complete Set of Training Manuals For Students and Instructors

Ten student texts and instructor handbooks have been prepared for use in the 1940–41 controlled Private (preliminary) and Restricted Commercial (secondary) courses of the Civilian Pilot Training Program. By the end of September, the task of printing the books was well under way at the Government Printing Office, with distribution scheduled to begin this month.

The complete list of training publications, a few of which are revisions of books used in last year's program, is as follows:

FLIGHT INSTRUCTOR'S MANUAL (Civil Aeronautics Bulletin No. 5).[1]

DIGEST OF CIVIL AIR REGULATIONS FOR PILOTS (Civil Aeronautics Bulletin No. 22).[1]

CIVIL PILOT TRAINING MANUAL (Civil Aeronautics Bulletin No. 23).

PRACTICAL AIR NAVIGATION (Civil Aeronautics Bulletin No. 24).[2]

METEOROLOGY FOR PILOTS (Civil Aeronautics Bulletin No. 25).

AERODYNAMICS FOR PILOTS (Civil Aeronautics Bulletin No. 26).

PILOTS' AIRPLANE MANUAL (Civil Aeronautics Bulletin No. 27).

PILOTS' POWERPLANT MANUAL (Civil Aeronautics Bulletin No. 28).

PILOTS' RADIO MANUAL (Civil Aeronautics Bulletin No. 29).

GROUND INSTRUCTOR'S MANUAL (Civil Aeronautics Bulletin No. 30).

All of the publications except the bulletins on meteorology, navigation, and radio were written by a group comprising a text writing project during June, July, and the early part of August at the University of Alabama, Tuscaloosa, Ala. Writers working on the project were: N. O. Anderson, St. Louis, Mo.; Daniel J. Brim, Jr., New York City; Bradley Jones, University of Cincinnati, Cincinnati, Ohio; T. D. Phillips, Marietta College, Marietta, Ohio; and L. E. Shedenhelm, J. S. Parker, Jr., and L. A. Walker, all with the Civil Aeronautics Administration. Parker, former chief of the C. A. A.'s publication section and former editor of the CIVIL AERONAUTICS JOURNAL, served as general editor.

The meteorology, navigation, and radio texts were prepared in Washington by B. C. Haynes, Associate Meteorologist, U. S. Weather Bureau; Thoburn C. Lyon, Cartographic Engineer, U. S. Coast and Geodetic Survey; and Reeder Nichols, Chief, Radio Unit, Air Carrier Inspection Section, respectively, with the cooperation of the Alabama group.

The books will be furnished to participants in the Pilot Training Program and will be placed on sale also by the Superintendent of Documents, Government Printing Office, Washington, D. C.

They will be of larger dimensions than previous bulletins (8 by 10½ inches); are bound in dark green stiff paper; are printed on an excellent quality of paper with wide margins for those who may wish to make notes while studying; and will range from one to several hundreds of pages. Most of the bulletins are illustrated profusely.

A more detailed description of the individual publications follows:

Bulletin No. 5, FLIGHT INSTRUCTOR'S MANUAL (September 1940).—The revised bulletin is a handbook and study outline intended to be of use solely to flight instructors. Also included in it is helpful material on the proper method of instruction in such ground school subjects as are covered by the flight instructor. It should be noted that the material of interest or of value to a *student* pilot, formerly included in Bulletin No. 5, has been incorporated in the CIVIL PILOT TRAINING MANUAL, Bulletin No. 23.

Bulletin No. 22, DIGEST OF CIVIL AIR REGULATIONS FOR PILOTS (Third Edition, September 1940).—This bulletin has been brought up to date and will be more complete and useful than previous issues.

Bulletin No. 23 CIVIL PILOT TRAINING MANUAL (September 1940).—In substance, this bulletin takes the place of Bulletin No. 21, PRIMARY GROUND STUDY MANUAL, and includes, in addition to much of the material formerly covered in that bulletin, the text for both Private and Restricted Commercial flight courses which was covered in the previous edition of Bulletin No. 5. It also covers the preliminary ground course except for "Civil Air Regulations," "Navigation," and "Meteorology."

Bulletin No. 24, PRACTICAL AIR NAVIGATION (September 1940).—In the Civilian Pilot Training course this bulletin supplants Special Publication No. 197 issued by the Coast and Geodetic Survey. It covers information on navigation of interest to pilots and is similar to the previous edition of the Coast and Geodetic Survey publication except that the chapter on meteorology has been omitted.

Bulletin No. 25, METEOROLOGY FOR PILOTS (September 1940).—The material in this publication formerly was covered briefly in Special Publication 197. It now presents, in an easily understandable form, the complete meteorological information necessary for pilots.

Bulletin No. 26, AERODYNAMICS FOR PILOTS (September 1940).—This bulletin is comprehensive in its treatment of aerodynamics, but has been written with a view to presenting in the simplest manner possible that information primarily of value to pilots.

Bulletin No. 27, PILOTS' AIRPLANE MANUAL (September 1940).—This manual consists of information on the construction and maintenance of aircraft and is written with a view to presenting information of value to pilots as differentiated from the mechanics' standpoint.

Bulletin No. 28, PILOTS' POWERPLANT MANUAL (September 1940).—This publication is believed to be one of the most comprehensive manuals ever compiled on the subject of aircraft engines and accessories, yet it is presented in the simplest manner possible.

Bulletin No. 29, PILOTS' RADIO MANUAL (September 1940).—This bulletin comprises information of interest and value to pilots on the use of aircraft radio and aeronautical radio procedures.

Bulletin No. 30, GROUND INSTRUCTOR'S MANUAL (September 1940).—Designed as a guide for ground instructors, this bulletin contains an outline of the ground school course and helpful material on the proper method of instruction in ground school subjects.

NOTE.—Bulletins Nos. 26, 27, 28, and 29 were prepared for use in the advanced courses of the Civilian Pilot Training Program.

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CIVIL FLYING

(Continued from page 450)

"Having touched upon the airlines, the airways and the airports, there remains—private flying. Here, until recently, was the ugly duckling of the civil aviation family. It languished. Its growth was painfully slow. Of the relatively few new owners registered each year, an alarming proportion got out of the game before they had worn out their first plane. Instruction was haphazard and the training was not very safe.

"We drafted a Civilian Pilot Training Program, to be supported by public money. We got suggestions from all sorts of aviation groups and the armed forces. We tried it out experimentally on 300 students.

"Congress authorized us, during the last school year, to train 10,000 young people up to the private pilot's grade. That was half again as many new pilots as ever had been produced in this country, from all civilian sources, in any previous year. But we did it, with an appropriation of four million dollars.

"Last spring, with the foreign situation much more menacing, Congress gave us eight times as much money for a pilot training program so big that it is hard to comprehend.

"Summed up, we will give flight training of various types to more than 65,000 individuals before next July. I'm not a very good statistician, but I think this 1-year program will compare favorably

(See CIVIL FLYING, page 458)

[1] Revisions.

[2] Formerly issued by Coast and Geodetic Survey as PRACTICAL AIR NAVIGATION AND THE USE OF THE AERONAUTICAL CHARTS OF THE U. S. COAST AND GEODETIC SURVEY (Special Publication No. 197).

First Phase of Airport Plan Completed; $80,000,000 Asked

Shows Work Required to Give United States Network of About 4,000 Airports Keyed to Future Needs; Connolly Says No Immediate Lists Available

The $80,000,000 appropriation requested by President Roosevelt for construction and improvement of airports, if enacted into law, will put into action the first phase of a long-range airport plan on which the Civil Aeronautics Administration has been working since July 1, and completed in September, according to Assistant Secretary of Commerce Robert H. Hinckley.

This long-range plan shows in detail the work required to give the United States a network of approximately 4,000 airports keyed to tomorrow's needs, he added, and includes developments in Alaska, Hawaii, and the South Pacific islands. He said the proposal had been worked out with the cooperation of both the Army and the Navy.

The over-all plan originally was suggested to cover 6 years, at a total cost of $560,000,000, exclusive of the cost of any land or buildings. Under extreme pressure, the plan might be carried out in 3 years, Mr. Hinckley estimated.

The Assistant Secretary explained that drafting of the long-time airport plan was one of the first things launched by Col. Donald H. Connolly, new Administrator of Civil Aeronautics, when he took office in July.

"Colonel Connolly has legislative authority to build airports," Mr. Hinckley said. "The Administrator of Civil Aeronautics has had such authority ever since the Civil Aeronautics Act became a law 2 years ago. Conversely, the Civil Aeronautics Authority, of which I was chairman, had no such power. All we could do, up to July of this year, was to make a comprehensive survey and report on the urgent need of more airports, which we did in March 1939, about 18 months ago.

"Colonel Connolly, with the aid of the Airport Section, under the direction of Maj. A. B. McMullen, which has kept careful check on the Nation's needs in this field, was able to get such a plan drafted, cleared with the armed forces, and presented in less than 90 days."

Colonel Connolly said subsequently that no list of airports to be improved under the $80,000,000 program has been, or can be, issued by the C. A. A. at this time.

Colonel Connolly explained that even if the money is made available, the current intensity of the defense factor will dwarf all other considerations, and that the War and Navy Departments must, of course, play a major part in deciding what locations are most useful to them.

He added that airport locations probably will be decided by some sort of joint board to be set up by the President, representing the War, Navy, and Commerce Departments.

"There is a great difference," he said, "between the work to be done under the present $80,000,000 authorization and the so-called 'long-range plan' of the Civil Aeronautics Administration.

"Perhaps our plan should be called a 'Nation-wide survey' instead of a 'long-range plan,' " he said. "It is merely a detailed survey of all the existing landing facilities of the country, supplemented by our own idea of the additions and improvements needed to meet present-day aviation traffic requirements.

"The work done under the $80,000,000 appropriation by Congress need not, under the law, bear any relation to the survey submitted by us."

Colonel Connolly said that, naturally, the C. A. A. must know the exact status of every airport in the country if it is to do intelligent planning, and he added, the agency's airport experts must be able to estimate the country's future needs with some accuracy if they are to enjoy the confidence of Congress and the President.

Connolly Outlines Program

The 6-year plan, he said, represents merely this knowledge transmitted in a single package for the consideration of Congressional Committees which recommend appropriations to Congress.

"The important thing is for communities not to assume that long lists of airports on our 6-year list are going to be built immediately from current funds," he said. "That 6-year list involves some 4,000 locations, whereas the program now before Congress will not exceed a few hundred fields."

The Federal Government neither will buy land nor construct buildings under the $80,000,000 airport program now before Congress, Colonel Connolly said.

"What the country needs immediately for defense purposes is landing areas—good fields which can handle plenty of aircraft quickly," he explained.

"The law provides for just that. Federal funds can be spent on grading, drainage, paving of runways, lighting, and navigation aids where necessary. In short, on improving the field."

Mr. Hinckley said the $80,000,000 requested by the President—$30,000,000 for this fiscal year and $50,000,000 in contractual authorizations for fiscal

(See Airport Plan, page 458)

LANDING FACILITIES ON OCT. 1, 1940

Municipal airports [1]	643
Commercial airports [2]	494
Civil Aeronautics Administration intermediate fields [3]	282
Army airdromes [4]	65
Naval air stations [5]	21
Marked auxiliary fields [6]	702
Private fields [7]	121
Total	**2,328**
Airports and landing fields having any night lighting equipment:	
Municipal	302
Commercial	92
Intermediate	282
Army	35
Navy	13
Auxiliary	33
Private	9
Total	**766**

SEAPLANE BASES ON OCTOBER 1, 1940

Army, Navy, Coast Guard	29
Other seaplane bases and anchorages	294
Total	**323**
Seaplane bases having any night lighting equipment:	
Navy and Coast Guard	5
Other bases and anchorages	9
Total	**14**

[1] Municipally operated, servicing available.
[2] Privately operated, servicing available.
[3] Operated by C. A. A., no servicing available.
[4] Army operated, open to service planes only.
[5] Navy operated, open to service planes only.
[6] Limited area, no servicing.
[7] Privately operated, no servicing.

Conference Discusses New International Airlines

Representatives of C. A. B. Return After Talking With Canadian Department of Transport on United States-Canada Service

The representatives of the aviation authorities of the United States and Canada agreed that they would recommend to the appropriate agencies of their respective Governments the steps necessary to the accomplishment of a program which would provide for the maintenance of international services on a sound economic basis. The recommendations contemplate the continued operation by United States carriers of the existing services between New York and Montreal, Boston and Montreal, Fargo and Winnipeg, Seattle and Vancouver, and over the route between Juneau and Fairbanks, Alaska, via Whitehorse, Yukon Territory, connecting at Whitehorse with Canadian services from Edmonton, Calgary, and other points in northwestern Canada. Other services now in operation across the border, for which applications for permits for continued operation are now pending before the Civil Aeronautics Board, are not covered by the agreement, but are left to be dealt with at the entire discretion of the United States Government.

In addition, it was agreed that United States air carriers should operate the services between Bangor, Maine, and Moncton, New Brunswick, and between Great Falls, Mont., and Lethbridge, Canada, if such services are authorized by the Civil Aeronautics Board. The conferees also recommended that a United States carrier be permitted to operate between Buffalo and Toronto, connecting with the operations of domestic carriers at Buffalo, and that a Canadian carrier be permitted to operate from Toronto to New York without intermediate stops. In other words, the recommendation is a nonstop service between Toronto and New York by a Canadian carrier and a service by a United States carrier or carriers between New York and Toronto with a stop at Buffalo. Recently, Trans-Canada Airlines inaugurated services between Toronto and Windsor and it was recommended, therefore, that United States carriers be permitted to operate between Windsor and points in the United States, connecting with Trans-Canada at Windsor, and that the Canadian carrier be authorized to extend its services into Detroit to make connections there.

In addition, the Canadian representatives agreed to recommend that the Canadian Government assist in installing, or permit Pacific Alaska Airways to install, such necessary aids to air navigation, including radio, along the coast of British Columbia as might be desirable in connection with the maintenance of regular schedules between Seattle, Wash., and Juneau, Alaska.

The present unsettled conditions were recognized by those attending the conference. The effective period of the recommendations, should they be approved and given effect by the responsible agencies of the two governments in the several cases in which they would be involved, was limited to December 31, 1942, before which time a further conference should be held for the purpose of considering further developments, and agreeing on future policies.

The American representatives at the conference were Edward Warner, vice chairman, and George P. Baker, member, of the Civil Aeronautics Board, and Samuel E. Gates, the Board's international counsel. The Honorable J.

(See CANADA, page 460)

C. A. B. Fixes Mail Pay Rate For Five T. W. A. Routes

Says Rates Set for Future Will Be Applicable to a Substantially Broadened Mileage Base

Fixing of mail rates for the transportation of mail by Transcontinental and Western Air, Inc., over routes Nos. 2, 36, 37, 38, and 44 was announced on September 20 by the Civil Aeronautics Board. The Board pointed out in its opinion that the mail rates set for the future will be applicable to a substantially broadened mileage base and that in fixing such rates, account of that fact has been taken.

The base rates announced today were as follows: For the period from January 23, 1939, to September 30, 1940, a base rate of 34.5 cents, 29 cents, 35 cents, and 42 cents per mile for routes 2, 36, 37, and 38, respectively. For route No. 44 a base rate of 22 cents for the period December 21, 1939, the date of inauguration of mail operations thereon, to September 30, 1940, was set.

On and after October 1, 1940, base rates of 17, 23, 31, 42, and 20 cents per airplane mile for the first 300 pounds of mail were set for routes Nos. 2, 36, 37, 38, and 44.

Route 2 extends between the coterminal points Newark, N. J., and New York City, and the terminal point, Los Angeles, Calif., via Pittsburgh, Pa., Dayton, Ohio, St. Louis, Mo., Kansas City, Mo., and other intermediate stops. Route 36 extends between terminal points Dayton, Ohio, and Chicago, Ill., via Fort Wayne, Ind. Route 37 extends between the terminal points Winslow, Ariz., and San Francisco, Calif., via Boulder City, Nev., Las Vegas, Nev., Fresno, Calif., and Oakland, Calif. (except with respect to mail). Route 38 extends between the terminal points Phoenix, Ariz., and Las Vegas, Nev., via Prescott and Kingman, Ariz. Route 44 extends between the terminal points Kansas City, Mo., and the coterminal points, Newark, N. J., and New York City, via Chicago, Ill., and between the terminal points Kansas City, Mo., and Pittsburgh, Pa., via Chicago.

In the year ended March 31, 1940, the air line realized system passenger revenues of $5,551,246.72, or an increase of 50.24 percent over the same revenues for the previous year. The Board estimated, on the basis of available information, that a further increase of approximately 36 percent per year could be expected in the foreseeable future.

The Board stated, however, that the company's recent acquisition of new equipment, five Boeing 307's with supercharged cabins for high-altitude flying and a larger passenger capacity but with greater operating expense, might later cause the necessity of a revision in the mail pay. The Board found that there was insufficient evidence in the present proceeding, due to lack of experience with these aircraft, to estimate their operating revenues and expenses. The Board, therefore, pointed out that the company has the right to apply for appropriate revision whenever the record is sufficient to justify such action.

Progress of Civil Aeronautics in the United States

[All statistics are of Dec. 31 of each year]

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	January–June 1940
SCHEDULED AIR-CARRIER OPERATIONS												
Airplanes:												
In service and reserve:												
Domestic [1]	442	497	490	456	408	417	356	272	282	253	265	322
Foreign and territorial [1]	83	103	100	108	96	101	103	108	104	92	[2] 74	[2] 83
Total	525	600	590	564	504	518	459	380	386	345	339	405
Average number of seats per plane (domestic) [1]				6.58	7.59	8.85	10.34	10.67	12.53	13.63	14.63	16.87
Airways (domestic, foreign, and territorial): [1]												
Services in operation	97	122	126	136	112	98	100	110	108	139	170	
Express mileage	11,775	20,445	21,348	46,821	46,120	50,652	60,377	61,458	63,656	70,652	79,562	
Mail mileage	26,597	41,501	43,735	45,436	44,665	46,003	51,428	51,740	57,480	63,292	74,338	
Passenger mileage	19,730	36,136	45,704	47,358	47,321	49,353	52,387	61,458	63,656	71,199	80,109	
Total mileage:												
Domestic [1]	24,874	29,887	30,451	28,550	27,812	28,084	28,267	28,874	31,084	35,492	36,581	
Foreign and territorial [1]	11,456	19,662	19,949	19,980	19,875	22,717	32,184	32,658	32,572	35,707	43,528	
Total	36,330	49,549	50,400	48,530	47,687	50,801	60,451	61,532	63,656	71,199	80,109	
Accidents:												
Domestic: [1]												
Number of accidents	124	88	117	108	100	71	58	65	42	33	33	19
Miles flown per accident	180,484	363,553	365,431	422,281	487,716	576,837	954,834	981,189	1,573,131	2,111,177	2,502,167	2,580,087
Fatal accidents	21	9	13	16	9	8	8	8	5	5	2	0
Miles flown per fatal accident	1,065,715	3,554,737	3,288,878	2,850,397	5,419,061	5,119,424	6,922,544	7,972,153	13,214,301	13,933,765	41,285,762	
Fatal accidents per 1,000,000 miles flown	0.94	0.28	0.30	0.35	0.18	0.20	0.14	0.13	0.08	0.07	0.02	
Pilot fatalities	19	8	11	14	8	8	8	8	4	3	1	0
Miles flown per pilot fatality	1,177,896	3,999,079	3,986,856	3,257,597	6,096,444	5,119,424	6,922,544	7,972,153	16,517,877	23,222,942	82,571,523	
Copilot fatalities	2	0	2	3	1	2	4	6	5	4	1	0
Crew fatalities (other than pilot and copilot)	1	1	0	0	0	2	2	3	3	3	1	0
Passenger fatalities	14	24	25	19	8	17	15	44	40	25	9	0
Passenger miles flown per passenger fatality		3,500,607	4,257,695	6,686,253	21,686,515	11,050,508	20,927,034	9,903,188	1,915,079	22,308,771	83,309,677	
Ground crew and third party fatalities	0	0	0	0	11	0	0	0	0	0	0	0
Passenger fatalities per 100,000,000 passenger miles flown		28.57	23.49	14.96	4.61	9.05	4.78	10.10	8.39	4.48	1.20	
Total fatalities	36	33	38	30	28	29	29	61	52	35	12	0
Fatalities per 1,000,000 miles flown	1.61	1.03	0.89	0.79	0.57	0.71	0.52	0.96	0.79	0.50	0.15	
Foreign and territorial:												
Number of accidents	13	3	9	7	1	2	4	5	8	11	6	2
Miles flown per accident	212,422	1,650,856	543,443	795,076	6,106,461	4,054,689	2,121,836	1,966,909	1,416,482	1,035,391	1,400,757	2,308,954
Fatal accidents	3	0	1	1	0	2	0	2	1	3	1	0
Miles flown per fatal accident	920,493		4,890,990	5,565,533		4,054,689		4,917,272	11,331,858	3,796,433	8,404,540	
Pilot fatalities	2	0	0	1	0	2	0	1	1	3	1	0
Miles flown per pilot fatality	1,380,739			5,565,533		4,054,689		9,834,544	11,331,858	3,796,433	8,404,540	
Copilot fatalities	0	0	0	0	0	1	0	1	1	3	1	0
Fatal accidents per 1,000,000 miles flown	1.09		0.20	0.18		0.25		0.20	0.09	0.26	0.12	
Crew fatalities (other than pilot and copilot)	1	0	0	2	0	2	0	2	1	13	2	0
Passenger fatalities	4	0	1	6	0	4	0	2	11	7	10	0
Passenger-miles flown per passenger fatality			14,680,402	3,524,590		9,698,057		29,271,809	6,913,220	11,119,559	8,503,115	
Passenger fatalities per 100,000,000 passenger-miles flown			6.81	28.37		10.31		3.42	14.46	8.99	11.76	
Ground-crew and third-party fatalities	0	0	0	0	0	0	0	0	0	0	0	0
Total fatalities	7	0	1	9	0	9	0	6	14	26	14	0
Fatalities per 1,000,000 miles flown	2.53		0.20	1.62		1.11		0.61	1.24	2.28	1.66	
Domestic, foreign, and territorial:												
Number of accidents	137	91	126	115	101	73	62	70	50	44	39	21
Miles flown per accident	183,515	405,991	378,146	441,973	543,347	672,120	1,030,124	1,051,597	1,548,067	1,842,230	2,332,720	2,554,265
Fatal accidents	24	9	14	17	9	10	8	10	6	8	3	0
Miles flown per fatal accident	1,047,562	4,105,022	3,403,315	3,010,111	6,097,557	4,906,477	7,983,162	7,361,177	12,900,561	10,132,266	30,325,354	
Fatal accidents per 1,000,000 miles flown	0.95	0.24	0.29	0.33	0.16	0.20	0.13	0.14	0.08	0.10	0.03	
Pilot fatalities	21	8	11	15	8	10	8	9	5	6	2	0
Miles flown per pilot fatality	1,197,214	4,618,150	4,231,492	3,411,459	6,859,752	4,906,477	7,983,462	8,179,086	15,480,673	13,509,688	45,488,032	
Copilot fatalities	[2]	0	[2]	[3]	[1]	[3]	[4]	[7]	[6]	[7]	[2]	0
Crew fatalities (other than pilot and copilot)	[2]	[1]	0	[2]	0	[4]	[3]	[5]	[4]	[16]	[3]	0

Pilot fatalities	21	8	11	15	8	10	8	9	5	6	2	0
Miles flown per pilot fatality	1,197,214	4,618,150	4,331,492	3,411,459	6,859,752	4,906,477	7,983,462	8,179,086	15,480,673	13,599,688	45,488,032	
Copilot fatalities	2	0	2	3	1	3	4	7	6	7	2	0
Crew fatalities (other than pilot and copilot)	2	1	0	2	0	4	2	5	4	16	3	0
Passenger fatalities	18	24	26	25	8	21	15	46	51	32	19	0
Passenger-miles flown per passenger fatality		4,322,802	4,658,568	5,927,453	24,972,004	10,792,898	24,158,051	10,745,302	10,836,246	19,861,131	43,937,802	
Passenger fatalities per 100,000,000 passenger-miles flown		23.13	21.46	16.87	4.00	9.26	4.14	9.31	9.23	5.03	2.28	
Ground-crew and third-party fatalities	0	0	0	0	11	0	0	0	0	0	0	0
Total fatalities	43	33	39	45	28	38	29	67	66	61	26	0
Fatalities per 1,000,000 miles flown	1.71	0.89	0.82	0.88	0.51	0.77	0.45	0.91	0.85	0.75	0.29	
Express and freight carried:												
Pounds (domestic) [1]	249,634	359,523	788,059	1,033,970	1,510,215	2,133,191	3,822,397	6,958,777	7,127,369	7,335,967	9,514,299	5,204,610
Pounds (foreign and territorial) [1]	7,809	109,048	412,184	638,836	979,504	1,349,272	1,742,740	1,455,407	1,856,680	2,116,633	[2] 1,397,956	[2] 833,991
Total	257,443	468,571	1,200,243	1,672,806	2,489,719	3,482,463	5,565,137	8,414,184	8,984,049	9,452,600	10,912,255	6,038,601
Ton-miles (domestic) [1]							1,089,802	1,860,809	2,156,070	2,173,706	2,705,614	1,474,213
Fuel (consumed) (domestic, foreign, and territorial): [1]												
Gasoline ..... gallons	6,285,374	14,549,477	19,157,382	23,686,948	26,326,796	25,136,274	33,260,609	37,153,821	41,424,384	45,310,192	55,937,135	33,230,420
Oil ..... do	314,268	452,952	642,980	702,021	924,411	838,756	879,775	873,572	844,570	829,870	921,186	572,000
Mail:												
Carried by contractors:												
Pounds [3] (domestic) [1]	7,099,581	7,985,010	9,097,411	7,393,257	7,362,180	7,411,004	13,268,730	17,706,159				
Pounds (foreign)	672,433	528,665	545,800	515,466	173,828	206,606	252,244	328,295	426,261	484,712	675,422	437,957
Total	7,772,014	8,513,675	9,643,211	7,908,723	7,536,008	7,617,610	13,520,974	18,034,454				
Ton-miles [3] (domestic) [1]						[4] 2,461,411	4,132,708	5,741,436	6,698,230	7,422,860	8,584,891	4,810,812
Miles flown (revenue):												
Daily average (domestic, foreign, and territorial) [1]	68,881	101,220	129,825	139,542	149,706	133,662	174,084	201,017	210,948	222,077	249,249	294,723
Mail (domestic, foreign, and territorial) [1]	14,869,166	19,904,185	33,113,720	36,053,067	41,671,490	27,340,293	39,977,189	44,027,794	46,896,584	54,659,684	61,111,831	32,475,062
Domestic routes [1]	22,380,020	31,992,634	42,755,417	45,606,354	48,771,553	40,955,396	55,380,353	63,777,226	66,071,507	69,668,827	82,571,523	49,021,661
Foreign routes [1]	2,761,479	4,952,569	4,890,990	5,565,533	6,106,461	8,109,377	8,487,345	9,834,544	11,331,858	11,389,300	[2] 8,404,540	[2] 4,617,907
Total	25,141,499	36,945,203	47,646,407	51,171,887	54,878,014	49,064,773	63,867,698	73,611,770	77,403,365	81,058,127	90,976,063	53,639,568
Operators (number of):												
Domestic [1]	34	38	35	29	21	22	23	21	17	18	17	17
Foreign and territorial [1]	6	7	7	6	7	4	7	7	7	8	8	8
Total	[5] 39	[5] 43	[5] 41	[5] 34	[5] 28	[5] 25	[5] 27	[5] 25	[5] 21	[5] 23	[5] 22	[5] 22
Passenger-miles flown (1 passenger carried 1 mile):												
Domestic,[1] revenue							279,375,902	388,242,120	407,295,893	476,402,280	667,672,955	453,455,729
Domestic,[1] revenue and nonrevenue		84,014,572	106,442,375	127,038,798	173,492,119	187,858,629	313,905,508	435,740,253	476,603,165	557,719,268	749,787,096	499,924,095
Foreign and territorial,[1] revenue and nonrevenue		19,732,677	14,680,402	21,147,539	26,283,915	38,792,228	48,465,412	58,543,618	76,045,424	77,836,916	[2] 85,031,146	[2] 54,287,028
Total		103,747,249	121,122,777	148,186,337	199,776,034	226,650,857	362,370,920	494,283,871	552,648,589	635,556,184	834,818,242	551,211,123
Passengers carried:												
Domestic,[1] revenue							663,261	911,148	958,510	1,176,858	1,717,090	1,151,428
Domestic,[1] revenue and nonrevenue	159,751	374,935	409,981	474,279	493,141	461,743	746,946	1,020,931	1,102,707	1,343,427	1,876,051	1,254,555
Foreign and territorial,[1] revenue and nonrevenue	13,654	42,570	61,681	73,281	83,471	110,522	127,170	145,112	187,028	192,684	[2] 168,970	[2] 114,620
Total	173,405	417,505	531,662	547,560	576,612	572,265	874,116	1,166,043	1,289,735	1,536,111	2,045,021	1,369,175
Passenger seat-miles flown (domestic) [1]				300,037,897	370,126,435	362,546,746	572,546,530	680,708,230	828,188,184	949,421,755	1,207,869,577	776,594,069
Passenger load factor:												
Domestic [1] revenue (percent)							48.80	57.04	49.18	50.18	56.10	58.39
Domestic [1] revenue and nonrevenue (percent)				42.34	46.87	51.82	54.83	64.01	57.55	58.74	62.08	64.37
Passenger fare (average per mile) (domestic) [1]	$0.12	$0.083	$0.067	$0.061	$00.061	$0.059	$0.057	$0.057	$0.056	$0.057	$0.051	$0.0508
Pay rate of:												
Mechanics, average per month (domestic) [1]	$157	$158	$165	$144	$137	$133	$149					
Pilots, average per month (domestic) [1]	$550	$460	$430	$413	$428	$524	$541			$678		
Copilots, average per month (domestic) [1]					$202	$201	$206			$237		

See footnotes at end of table.

Progress of Civil Aeronautics in the United States—Continued

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	January–June 1940
SCHEDULED AIR-CARRIER OPERATIONS—Continued												
Personnel employed (domestic, foreign, and territorial):[1]												
Mechanics and ground crew	1,182	1,800	2,061	2,076	2,327	2,208	2,618	2,874	3,280	3,415	4,006	4,769
Pilots	562	675	694	570	547	507	656	694	755	820	836	967
Copilots				147	210	252	339	547	602	605	872	1,109
Stewards and Stewardesses							212	390	420	451	639	879
Other hangar and field personnel	601	1,000	1,555	1,512	1,839	1,851	1,518	1,767	2,356	2,635	3,015	4,065
Operation and office personnel			1,357	1,305	1,372	1,659	3,008	3,723	4,179	5,383	6,555	8,133
Total	2,345	3,475	5,667	5,610	6,295	6,477	8,351	9,995	11,592	13,309	15,923	19,922
Trips:												
Percentage completed of those started (domestic)[1]	94.94	96.29	93.61	95.56	95.55	93.88	94.38	95.60	95.41	95.36	97.63	94.97
Percentage started of those scheduled (domestic)[1]	92.79	92.51	92.27	87.75	89.25	92.25	95.76	93.97	91.13	91.37	95.70	93.88
Percentage completed of those scheduled (domestic)[1]	88.10	89.08	86.37	83.85	85.28	86.61	90.38	94.05	89.51	90.48	93.63	92.66
Passenger, average length (miles) (domestic)[1]		224	226	208	352	407	420	427	432	415	400	398
PRIVATE FLYING OPERATIONS (All domestic)												
Airplanes in operation (certificated and uncertificated)	9,315	9,218	10,090	9,760	8,780	7,752	8,613	8,849	10,446	10,718	12,274	
Accidents:												
Number of accidents	1,586	2,033	2,205	1,951	1,603	1,504	1,517	1,698	1,917	1,882	2,175	
Miles flown per accident	69,357	53,256	42,786	40,071	44,431	50,267	55,871	54,959	53,832	68,735	81,778	
Number of fatal accidents	287	301	253	208	182	186	164	159	185	172	194	
Miles flown per fatal accident	383,275	359,700	372,898	375,859	391,334	406,463	516,803	586,921	557,818	752,088	916,846	
Pilot fatalities	205	244	209	167	154	148	134	130	152	141	161	
Copilot or student fatalities	2	26	22	16	19	18	19	15	16	15	7	
Passenger fatalities	241	213	156	133	129	151	100	119	112	115	139	
Aircraft crew fatalities (other than pilot, copilot, or student)	3	5	6	1	5	4	4	6	2	1	4	
Ground crew and third-party fatalities	6	19	7	4	3	4	5	2	1	3	3	
Total fatalities	457	507	400	321	310	325	262	272	283	275	314	
Miles flown per pilot fatality	526,585	443,728	451,402	468,136	462,486	510,825	632,505	717,849	678,923	917,440	1,104,771	
Miles flown per passenger fatality	456,432	508,309	604,763	587,810	552,115	500,677	847,556	784,205	921,396	1,124,862	1,279,627	
Fuel (consumed):												
Gasoline—gallons	14,235,243	13,981,331	11,658,009	10,293,599	8,861,104	9,630,869	11,104,259	10,451,496	10,618,240	10,201,053	16,394,335	
Oil—do	711,762	700,567	535,689	411,744	368,681	348,985	334,420	316,502	310,851	287,875	460,189	
Miles flown	110,000,000	108,269,760	94,343,115	78,178,700	71,222,845	75,602,152	84,755,630	93,320,375	103,196,355	129,359,095	177,868,157	
Passengers carried:												
For hire	1,732,752	1,840,492	1,430,052	879,225	906,970	1,044,079	1,014,957	1,215,405	1,295,904	1,238,133	1,161,292	
Not for hire	456,679	457,849	437,465	376,584	339,164	353,209	272,418	250,653	284,508	337,018	432,794	
Total	2,189,431	2,298,341	1,867,517	1,255,809	1,246,134	1,397,288	1,287,375	1,466,058	1,580,412	1,575,151	1,594,086	
AIRPORTS AND LANDING FIELDS												
Airports:												
Commercial and private	495	564	673	645	713	618	552	525	492	528	456	495
Municipal	453	550	636	549	563	702	739	738	764	791	643	646
Intermediate—C. A. A.—lighted	285	347	385	337	246	250	282	284	278	265	266	282
Intermediate—C. A. A.—unlighted	0	7	19	15	19	9	9	12	5	2	0	0
Auxiliary—marked	235	240	300	476	550	580	630	622	602	628	665	653
Army, Navy, Marine Corps, National Guard, Reserve, and miscellaneous airports	82	74	80	95	97	138	156	161	158	160	250	269
Total airports in operation	1,550	1,782	2,093	2,117	2,188	2,297	2,368	2,342	2,299	2,374	2,280	2,345
Lighted, total		640	680	701	626	664	698	705	720	719	735	761
Of entry, regular	10	10	9	10	11	11	12	12	21	37	39	38
Of entry, temporary	8	30	36	39	42	42	43	43	34	23	21	22

FEDERAL AIRWAYS SYSTEM AND AIDS TO AIR NAVIGATION

Of entry, temporary	[1] 8	30	36	39	42	42	43	43	34	23	21	22
FEDERAL AIRWAYS SYSTEM AND AIDS TO AIR NAVIGATION												
Communication:												
Radio broadcast stations	34	45	56	61	68	71	74	80	83	91	92	93
Radio range beacon stations	9	33	47	68	94	112	137	146	167	225	244	238
Radio marker beacons		6	46	74	77	84	57	57	55	48	48	48
Weather reporting airway and airport stations—Weather Bureau and C. A. A. operated, long-line teletypewriter equipped	58	143	234	234	205	206	203	213	271	314	298	368
Miles of teletypewriter service	2,415	8,400	13,186	13,500	12,064	11,631	13,260	13,120	20,588	23,771	36,742	38,782
Weather Bureau—first order stations (does not include airport stations)	207	209	218	216	194	185	191	182	198	182	185	172
Airway lighting:												
Beacons:												
Revolving and flashing listed together for 1929	1,311											
Revolving		1,290	1,460	1,623	1,510	1,324	1,657	1,677	1,717	1,753	1,875	1,986
Flashing		362	376	365	286	196	211	241	252	214	214	219
Beacons—privately owned and certified	114	140	188	228	269	310	330	410	466	530	650	720
Intermediate landing fields, lighted	285	347	385	337	246	250	282	284	278	271	274	279
Mileage lighted	12,448	15,258	17,512	19,500	18,655	19,081	22,012	22,245	22,319	23,723	27,074	28,745
Miles under construction at close of year	1,352	3,221	1,988	0	2,638	3,048	338	0	945	1,849	2,192	796
CERTIFICATES												
Uncertificated aircraft (active):												
Airplanes	3,119	2,464	3,127	2,994	2,388	1,983	1,701	1,805	1,684	1,159	943	481
Gliders		1,012	1,181	1,282	585	446	387	370	320	176	177	89
Certificated (active):												
Airplanes	6,803	7,354	7,553	7,330	6,896	6,339	7,371	7,424	9,152	10,000	12,829	13,878
Gliders	0	76	89	79	56	40	48	31	41	45	44	35
Instructors, ground	154	269	138	86	63	59	55	48	55	92	446	760
Mechanics	7,701	8,993	9,016	8,373	8,226	8,156	8,432	8,738	9,314	9,884	10,296	10,230
Pilots, airplane	10,287	15,280	17,739	18,594	13,960	13,949	14,805	15,952	17,681	22,983	31,264	41,006
Pilots, glider	0	178	267	209	149	109	145	138	161	172	170	161
Riggers, parachute	0	93	224	305	335	358	381	393	362	397	425	404
Student pilot certificates (issued yearly):												
Airplane	20,400	18,398	16,061	11,325	12,752	11,994	14,572	17,675	21,770	15,556	29,839	29,615
Glider	0	772	506	262	142	225	330	209	125	98	263	220
PRODUCTION AND EXPORTS												
Exports:												
Airplanes	348	321	140	280	406	490	334	515	621	875	1,219	1,532
Airplanes, value	$5,484,600	$4,819,669	$1,812,827	$4,358,967	$5,391,493	$8,258,484	$6,638,515	$11,386,896	$21,027,361	$37,977,324	$66,386,736	95,261,402
Engines	321	377	318	2,356	2,901	1,007	568	945	1,047	1,307	1,880	2,008
Engines, value	$1,375,697	$1,635,076	$1,474,785	$1,517,682	$1,430,787	$4,383,101	$2,459,317	$5,397,469	$5,944,004	$7,899,144	$14,120,035	17,704,362
Parts and accessories, aircraft, value	$2,252,203	$2,351,651	$1,521,828	$1,756,421	$2,247,834	$4,808,130	$5,069,810	$6,060,483	$12,157,337	$21,930,343	$35,798,922	24,889,447
Parachutes and parts, value				$313,463	$87,522	$98,466	$163,201	$298,358	$267,771	$400,939	$775,389	$537,835
Total	$9,112,500	$8,806,396	$4,809,440	$7,946,533	$9,157,636	$17,548,181	$14,330,843	$23,143,206	$39,396,473	$68,207,750	$117,081,082	$138,388,046
Production:												
Airplanes	6,193	3,437	2,800	1,396	1,324	1,615	1,691	3,010	3,773	[6] 2,698	[6] 3,715	[6] 2,289
Airplanes and parts, value	$62,487,861	$34,545,728	$33,348,451	$19,519,284	$23,231,000	$25,399,078	$27,064,339	$47,531,565	$67,289,541			
Engines	6,504	4,356	3,864	1,959	1,830	2,545	2,866	4,295	6,214			
Engines and parts, value	[7] $25,034,747	$22,396,054	[7] $13,833,171	$13,844,385	[7] $8,751,122	$15,825,127	[7] $12,610,285	$26,383,055	[7] $28,576,971			
Equipment (miscellaneous), value	$3,528,436	$3,904,395	$1,358,093	$1,497,516	$1,375,000	$2,667,720	$2,831,580	$4,234,273	$8,228,109			
Total value, all aircraft, engines, parts, and equipment	$91,051,044	$60,846,177	$48,539,715	$34,861,185	$33,357,122	$43,891,925	$42,506,204	$78,148,893	$104,094,621			
Number of aircraft manufacturers producing	132	82	66	68	57	48	50	48	48	48		
Number of engine manufacturers producing	21	23	31	20	10	17	17	23	21	20		
Personnel employed:												
By aircraft manufacturers				8,056	9,626	13,483	18,500	23,531	31,920	35,000		
By engine, propeller, and accessory manufacturers				1,822	2,500	5,192	5,500	7,044	8,047			

[1] Domestic air carriers are American companies operating within the continental United States. Foreign and territorial carriers are American companies operating in United States Territories and in foreign countries.

[2] Does not include the operations of the following affiliated companies of Pan American Airways System: Cia Mexicana de Aviacion, S. A., Cia Nacional Cubana de Aviacion, and Panair do Brasil, which prior to the year 1939 were included with foreign and territorial statistics.

[3] The mail pound-miles flown and mail payments statistics of Inter Island Airways, Ltd., are included with the domestic mail pound-miles and mail payments as this company holds a domestic air mail contract. All other operations statistics for this carrier are included with the figures for foreign and territorial operations.

[4] Includes 224,236 ton-miles of mail carried and $2,249,004 paid to the War Department for carrying the mail from Feb. 20 to Mar. 16, 1934.

[5] In several cases the same carrier operated both domestic and foreign services.

[6] Does not include aircraft produced for the U. S. Military Services.

[7] Value of engine parts for these years not available.

Airport Plan

(Continued from page 452)

1942—would cover only those locations most immediately needed and of greatest strategic importance to the defense program.

DEFENSE PRIORITY

It is his understanding, he said, that priorities of respective locations probably will be determined by the War, Navy, and Commerce Departments, working together; and that the Administrator of Civil Aeronautics, directing the program, will coordinate the activities of other Federal agencies which can help to expand it further, such as the W. P. A., C. C. C., Corps of Engineers, Bureau of Yards and Docks, etc.

Mr. Hinckley pointed out that today's acute need for more and better landing fields springs in large measure from the past year's unprecedented "skyrocketing" of all types of flying, both military and civil.

"The air lines are getting twice the increase in business they expected," he said. "The Civilian Pilot Training Program used 435 airports last year; the number has jumped to 650 fields now and may be 1,000 by spring—and traffic on these fields is relatively much heavier."

"The Army, Navy, National Guard, and Reserve will need over 75 civil airports for tactical or training work already planned, and probably will need more as the defense program progresses."

"Moreover, as the military air forces expand, they will need hundreds of good-sized, all-weather airports at strategic points, both for tactical movements and as actual bulwarks against possible aggression."

Mr. Hinckley said the long-time C. A. A. plan proposes to increase the number of major civil airports from 36 to about 500; of medium-size airports from 245 to about 1,600; and of smaller fields from 1,576 to about 1,900. These figures are in addition to the 78 airdromes operated by the Army or Navy today.

He pointed out that since the funds requested this week would cover only about one-seventh of the long-time plan, the actual locations to be improved under this appropriation can be determined only after joint conferences between the War, Navy, and Commerce Departments as to which will serve the national interest most effectively.

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CIVIL FLYING

(Continued from page 451)

with the total of all the formal training given by all civilian sources in the country since the Wright Brothers invented the airplane.

"It must be borne in mind that this training program was conceived and executed for the purpose of stimulating civilian flying. It did. During the first training period, airplanes built for private ownership increased more than 50 percent.

"The reason we could expand this program almost indefinitely when Congress directed it, is important. That reason is that we were not bound or limited by self-contained machinery. Some people would call it bureaucracy. We did not set up Federal centers for this training. We spread it out among the colleges and the private aviation business units of the country.

"The majority of our students are beginners—that's the preliminary course. Forty-five thousand such graduates will be added this year to last year's 10,000. We know these are fledglings. They have only 72 hours' ground school and from 35 to 50 hours of flying, on light airplanes. But they are healthy, they are the right age, they have enough education and they want to fly.

"This year, we will take 9,000 from the top bracket of these graduates and give them a secondary course—a tougher course on heavier planes of the same type as primary military trainers. Forty-five more hours in the air, 140 more hours of ground school. These are the boys we believe will be good material for the Army and Navy to draw on. We make no promises as to what they can do—this phase is too new. But we know these boys are up to physical standard, because they must take the military physical examination to get in; and we are satisfied they will want to go on into military aviation because from now on they must sign a pledge to that effect.

"There are some 25,000 other courses in the program which are not spectacular, but thousands of them are very substantial. I mean the refresher courses by which we are bringing back into active flying some 5,000 former pilots who had allowed their licenses to lapse, and the thousands of instructors, examiners and inspectors who are being trained to higher ratings. All these supervisory-type people can play a vital part in any national emergency. This is a young man's game, and an impressive number of them could fight, if necessary, while thousands of others could release other and younger airmen by replacing them in civil aviation.

"Above all, please remember that this whole thing is being achieved, in record time, through private civilian facilities, on a completely democratic basis.

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AIR TERMINAL

(Continued from page 447)

field and 10 feet above it running north from the terminal building. Here there will be entrances to the flying field for patrons of the charter and taxi services and for the flights of the Goodyear blimps which will operate from mooring facilities in the northwest corner of the field with a hangar at some point other than the National Airport.

These facilities were determined upon after careful studies of airports both in the United States and abroad. It was learned, for instance, that before the war a large part of the patronage for the Dutch Air Lines was secured from among the sightseers who came to the Schipol Airport at Amsterdam. It was learned that the patronage of the restaurants and observation terraces on the famous mile-long roof of the hangars at Templehof in Berlin paid a large share of the cost of the airport. But only in a few isolated instances in the United States was little or any effort being made to attract the general public to the airports which constitute the doorway to civil aviation.

Hence it was decided, once Gravelly Point was selected for the site of the National Airport, not only to take full advantage of its picturesque situation but to do so in a way that not only would contribute to civil aviation generally by the attraction of increased patronage but actually would help to make the airport itself a profitable enterprise.

Consequently, the development of the plans, in conformity with the almost doubled patronage of civil aviation already evident in the last 2 years, went far beyond the facilities suggested in the 1937 report of the congressional committee which favored this site and which outlined a much more modest development at a cost of approximately $5,000,000.

According to present plans, the National Airport will cost in the neighborhood of $12,500,000 when completed. Of this sum $10,500,000 represents allocation from P. W. A. and W. P. A. funds and the remainder represents a special appropriation now pending before Congress. This was requested upon the representation of the three airlines now serving Washington that they would need immediately more hangar space than planned and were willing to pay rental for it on the basis of a profitable return to the Government.

With 144 scheduled landings and takeoffs every 24 hours, Washington is already the third busiest airport in the United States. Three other air lines have already filed applications with the Civil Aeronautics Board for service into Washington. Hence it is predicted that the new airport will be devoted mainly to air line service and that for Washington's other growing needs for private, experimental, training, and service flying, other airports must be developed in outlying parts of the area.

Though Washington National Airport will be usable more than 90 percent of the time, it always has been a part of its plan that an alternative airport should be built in some area free of river fog. It has been suggested that such a field, half way between Washington and Baltimore, also would serve the latter city in the event of fog closing its airport which is on the harbor level. Such an airport might be made so large at relatively low cost as to provide during normal times for much of the military, training, and experimental flying of the area.

CIVIL AERONAUTICS BOARD

OFFICIAL ACTIONS

Abstracts of Opinions, Orders, and Regulations

FOR THE PERIOD SEPTEMBER 15–30, 1940

Special Notice

Economic Opinions of the Civil Aeronautics Board Available in Printed Pamphlets—Sold Individually or on Subscription Basis

The CIVIL AERONAUTICS JOURNAL carries in this section an abstract of all rules, regulations, and orders, and a syllabus of all opinions issued by the Civil Aeronautics Board during the half-month ending 2 weeks prior to the date of publication.

All opinions of the Board in economic proceedings now are printed individually, and may be obtained on a subscription basis.

Subscriptions for economic opinions will be by volume rather than for a specific period of time. Each volume will comprise approximately 800 pages of printed opinions which ultimately will make up a bound volume of CIVIL AERONAUTICS BOARD REPORTS.

For example, opinions issued subsequent to June 30, 1940 (now being printed) are paginated consecutively from 1 to 800, irrespective of the intervals between publication of individual opinions. The same plates used in printing the "advance sheets" later will be used to print the bound volumes.

The first volume of opinions, comprising all decisions of the Civil Aeronautics Authority from the time of its inception to June 30, 1940, when it was transferred to the Department of Commerce, is called CIVIL AERONAUTICS AUTHORITY REPORTS, Volume 1. The next volume, of which currently issued opinions will form a part, will be called CIVIL AERONAUTICS BOARD REPORTS, Volume 2.

CIVIL AERONAUTICS AUTHORITY REPORTS, Volume 1, now is being printed, and notice will be given on this page when it is placed on sale.

The subscription price for each volume of "advance sheets" of economic opinions is $1. Remittance should be made to the Superintendent of Documents, Government Printing Office, Washington, D. C.

For those who do not wish to subscribe to the complete volumes, the "advance sheets" of economic opinions may be purchased individually. As each opinion becomes available in printed form, the title of the case, docket number, order number, date, and price will be listed in the Official Actions section of the JOURNAL. All orders must be sent to the Superintendent of Documents.

Opinions in cases of suspension, revocation, or denial or airman certificates are available in mimeograph form only. Verbatim copies of these may be obtained by addressing a request to the Correspondence Unit, Civil Aeronautics Administration, Washington, D. C.

To those persons who now subscribe to the JOURNAL primarily to receive the opinions, and who will so inform the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C., will be sent the "advance sheets" of opinions issued up to the date of expiration of their current subscriptions. It should be pointed out, however, that those desiring to receive unbroken sets for each volume should enter their subscriptions for opinions with the Superintendent of Documents now, in order to avoid having their service cut off in the middle of a volume by reason of the termination of their JOURNAL subscription.

Any inconvenience caused subscribers by the change described is sincerely regretted. At the time of the inception of the JOURNAL, however, the altered circumstances which rendered unfeasible the continued inclusion of opinions in the JOURNAL could not be foreseen.

ORDERS

ORDER NO. 652: *P. C. A. issued certificate of public convenience and necessity.*

The Board on September 17 issued a certificate of public convenience and necessity to Pennsylvania-Central Airlines Corporation authorizing it to engage in air transportation with respect to persons, property and mail between the terminal point Norfolk, Va., the intermediate points Rocky Mount, Raleigh, Greensboro, and Asheville, N. C., and the terminal point Knoxville, Tenn.; defers decision on the application for authorization to engage in air transportation between Knoxville, Tenn., and Cincinnati, Ohio, and denies the application for authorization to engage in air transportation to and from Winston-Salem, Hickory, and Elizabeth City, N. C. (opinion and order—docket 245).

ORDER NO. 653: *Adopted order determining rates of compensation to be paid TWA for transportation of mail.*

The Board on September 19 adopted order fixing and determining fair and reasonable rates of compensation to be paid Transcontinental & Western Air, Inc., for the transportation of mail by aircraft over routes Nos. 2, 36, 37, 38, and 44 (opinion and order—docket 154).

ORDER NO. 654: *Canadian Colonial temporarily exempted from conditions of certificate for New York City—Albany route.*

The Board on September 20 temporarily exempted Canadian Colonial Airways, Inc., from the conditions of its certificate of public convenience and necessity which would prevent its rendering service between New York City and Albany, N. Y., without continuing such trips to the terminal point Montreal, Canada.

ORDER NO. 655: *Authorized temporary holding of interlocking relationships of Legh R. Powell, Jr., Railway Express Agency, Inc., and certain railroad companies.*

The Board on September 23 authorized temporary holding of interlocking relationships of Legh R. Powell, Jr., and Railway Express Agency, Inc., and certain railroad companies.

ORDER No. 656: *Granted application of Braniff Airways for amendment to its certificate covering Route No. 15; denied application of Trans-Southern.*

The Board on September 24 granted, in part, application of Braniff Airways, Inc., for an amendment to its certificate of public convenience and necessity covering Route No. 15 so as to authorize transportation of persons, property and mail between Amarillo, Tex., and Oklahoma City, Okla. Denied application of Trans-Southern Airlines, Inc. (opinion and order—dockets 12-401 (B)-1 and 195).

ORDER No. 657: *Andrew J. Burke permitted to withdraw his application for certificate authorizing air transportation between San Antonio and Laredo, Tex.*

The Board on September 24 granted request of Andrew J. Burke to withdraw his application for a certificate of public convenience and necessity authorizing air transportation between San Antonio and Laredo, Tex.

ORDER No. 658: *Wallace Air Service permitted to withdraw its application for certificate authorizing air transportation between Portland and Bellingham.*

The Board on September 24 granted request of Wallace Air Service to withdraw its application for a certificate of public convenience and necessity authorizing air transportation between Portland, Oreg., and Bellingham, Wash.

ORDER No. 659: *American granted permission to intervene in proceeding involving applications of various companies for certificates authorizing air transportation between various points in Texas.*

The Board on September 24 granted American Airlines, Inc., permission to intervene in the proceeding involving applications of Continental Air Lines, Inc., Braniff Airways, Inc., Essair, Inc., and Transcontinental & Western Air, Inc., for certificates of public convenience and necessity authorizing air transportation between various points in the State of Texas.

ORDER No. 660: *Granted application of PCA to amend its certificate covering Route No. 41.*

The Board on September 26 granted application of Pennsylvania-Central Airlines Corporation to amend its certificate of public convenience and necessity covering Route No. 41 so as to authorize air transportation with respect to persons, property, and mail between Traverse City and Grand Rapids, Mich., during the period from May 1 to October 31, both inclusive, of each year (opinion and order—docket 242).

ORDER No. 661: *Limited commercial pilot certificate of George A. Van Epps suspended for 30 days.*

The Board on September 27 suspended for a period of 30 days limited commercial pilot certificate No. 49464, held by George A. Van Epps, Watertown, N. Y., for piloting an aircraft carrying a person who occupied a control seat of said aircraft when the dual controls thereof had not been made inoperative.

REGULATIONS

REGULATION No. 111: *Adopted Amendment No. 72 of the Civil Air Regulations.*

The Board on September 20 adopted Amendment No. 72 of the Civil Air Regulations redesignating control zones of intersection and certain airway traffic control areas.

REGULATION No. 112: *Adopted Amendment No. 3 of Section 228 of the Economic Regulations.*

The Board on September 20 adopted Amendment No. 3 of section 228.1 of the Economic Regulations amending provisions for free travel for postal employees.

REGULATION No. 113: *Adopted amendment No. 73 of the Civil Air Regulations.*

The Board on September 20 adopted amendment No. 73 of the Civil Air Regulations revising the eduction requirements for mechanic certificates.

REGULATION No. 114: *Adopted amendment No. 74 of the Civil Air Regulations.*

The Board on September 20 adopted amendment No. 74 of the Civil Air Regulations revising the qualifications for aircraft dispatcher certificates.

REGULATION No. 115: *Rescinded by Regulation No. 116.*

REGULATION No. 116: *Rescinded Regulation No. 115.*

The Board on September 25 rescinded Regulation No. 115 restricting the operation of aircraft in the vicinity of Washington National Airport on September 25, 1940.

REGULATION No. 117: *Adopted air traffic rule restricting operation of aircraft in vicinity of Washington National Airport on September 28, 1940.*

The Board on September 25 adopted an air traffic rule restricting the operation of aircraft within that area lying within a radius of 10 miles horizontally from the center of the Washington National Airport between 2 and 2:45 p. m. on Saturday, September 28, 1940.

CANADA

(Continued from page 453)

Pierrepont Moffat, American Minister to Canada, attended the sessions of the conference as an observer.

The Canadian Government was represented by the Honorable C. D. Howe, Minister of Munitions and Supply; Col. V. I. Smart, Deputy Minister of Transport; Commander C. P. Edwards, Chief of Air Services; J. A. Wilson, Controller of Civil Aviation; and P. T. Coolican, Deputy Assistant Postmaster General of Canada.

Representatives of the Civil Aeronautics Board recently have returned from Ottawa, Canada, after having discussed with representatives of the Canadian Department of Transport the inauguration of new international air services between the United States and Canada. The conference was for the purpose of giving effect to article III of the Air Transport Arrangement entered into between the governments of the two countries on August 18, 1939, providing for the operation of scheduled air services across the border. The conferees agreed to recommend to their respective governmental agencies a program for the division of routes and services between carriers of the two nations on a reciprocal basis.

In order for a United States air carrier to inaugurate service between the United States and Canada, it not only is necessary to obtain a certificate of public convenience and necessity from the Civil Aeronautics Board but also to obtain a license from the Board of Transport Commissioners of Canada authorizing flights into Canadian territory. Similarly, Canadian carriers seeking to operate into the United States must have formal permission from both of the Governments concerned. In issuing a certificate of public convenience and necessity to a United States carrier for a route running into Canada, the attitude of the Canadian Government toward the issuance of a permit for the proposed service must be given consideration, for without the Canadian permit, the service could not be commenced. To make certain that an air carrier authorized by its own government would be given a permit by the other government, the representatives at the conference attempted to formulate a program which would meet the public need for service, and, at the same time, insure an equitable distribution of international services and protect the two Governments against the creation of excessive financial burdens in the award of mail compensation for the unnecessary maintenance of directly duplicated services.

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